

AFFINITY OF CHOLESTEROL FOR POLYUNSATURATED FATTY ACID-CONTAINING PHOSPHOLIPIDS

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A wide range of health benefits is associated with the consumption of omega-3 polyunsaturated fatty acids (PUFAs). One possible mechanism is that through our diet, they are incorporated into the phospholipids of the plasma membrane and disrupt the molecular organization of membrane domains due to the high disorder of PUFA. Our focus is the interaction of PUFA with cholesterol, a major component in plasma membranes. The objective here is to measure the affinity of cholesterol for PUFA-containing phospholipids by observing how cholesterol partitions between large unilamellar vesicles (LUVs) and Cyclodextrin (CD). Crucial to this determination, we need to be able to determine the concentration of cholesterol in LUVs and CD using an enzymatic colorimetric assay to create a standard curve of light absorbance (at 570nm wavelength) as a function of cholesterol concentration. The assay and its application to measuring binding coefficients for cholesterol will be described.